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Environmental tax issues of relevance to developing countries

Update on environmental taxation

Note by the Secretariat

I. Background

1. The Committee of Experts on International Cooperation in Tax Matters first considered the topic of environmental taxation in a comprehensive fashion at its twelfth session, in October 2016. On that occasion, Ingela Willfors of Sweden (as a member of the Committee of Experts) initiated the discussion of the item by pointing out that the base erosion and profit shifting project of the Organization for Economic Cooperation and Development (OECD) and the Group of 20 (G20) had signalled that the least developed countries, though most affected by environmental changes, were the least likely to apply environmental taxes because of the lack of capacity and resources and the dearth of knowledge in the application of indirect tax systems. She highlighted that Sweden had been applying carbon taxes for over 25 years and had set a possible example for other countries. Carbon tax had been the policy of choice for Sweden (over other forms of environmental taxation such as value added tax (VAT)-like taxes, energy consumption taxes, energy excise taxes and emissions trading mechanisms) owing to its administrative simplicity and low cost.

2. Susanne Åkerfeldt from the Ministry of Energy of Sweden then outlined the Swedish experience in greater detail. Ms. Åkerfeldt gave a presentation on the significance of environmental taxation for developing countries' economic development. Her presentation analysed how a country might design its tax system in order to raise revenues while making use of indirect taxes and other environmentally sound policies.

3. Ms. Åkerfeldt noted that one of the benefits of applying a carbon tax is that the cost is low. Carbon tax can be added to the existing fuel taxes without any additional administrative cost: the carbon tax is expressed as a trade unit, per weight or volume, similar to an excise tax; therefore countries already have the mechanisms

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in place to apply the tax. The country can also choose the point of taxation which is most beneficial to the tax administration, applying the tax where the taxpayers are less numerous (in Sweden, the tax is applied at the level of distributors and large consumers). Ms. Åkerfeldt gave a presentation on the Swedish experience at the thirteenth session of the Committee of Experts, in December 2016.[1]

4. Thornton Matheson of the International Monetary Fund secretariat gave a presentation at the twelfth session, emphasizing that both developed and developing countries may benefit from the application of a robust carbon policy.[2] Whereas developing countries have a more immediate need to raise revenues because they have a large informal sector and therefore have less of a basis upon which to apply direct taxes, developed countries can also benefit from the application of carbon taxes because their taxes tend to be largely distortive towards certain segments of the economy.

5. Ms. Matheson indicated the advantages of a carbon tax over other forms of energy pricing, emphasizing that carbon taxes are more economically efficient, have a more positive impact on the environment and are good revenue raisers. For developing countries, the fact that the tax is easy to administer represents a distinct advantage over other policies such as energy taxes and emissions trading schemes, which are more complex in administration. In that context, China was indicated as a relevant case study. At the thirteenth session of the Committee of Experts, Ms. Matheson contributed a presentation on environmental reform in developing countries, which focused on the need to remove fuel-related tax subsidies.[3]

6. Following the presentations at the thirteenth session, several business representatives expressed their support for a carbon tax over other forms of environmental taxation. Interest was also shown in specific features of the Swedish regime, while recognizing the need to respect developing country differences and realities.

7. At the fourteenth session of the Committee of Experts, held in April 2017, a further paper was presented,[4] which put environmental taxation in the context of the Paris Agreement[5] and other commitments made under the United Nations Framework Convention on Climate Change.[6] Ms. Willfors, with assistance from the Secretariat, provided a broad overview of the policy considerations to be explored by developed and developing countries should they wish to introduce environmental taxes.

8. In that paper, it was noted that many developing countries are confronted with low government revenue, for a variety of reasons. The OECD/G20 project has shed light on how harmful base erosion and profit shifting can be, particularly for developing countries lacking the resources to control and tax offshore transactions, even if the main economic activity took place or value was created in their territories. Tax avoidance strategies, as well as the failure to capture rent deriving from the activities taking place in a country's territory are issues which are inherent to direct tax systems, where the application of the tax will be dependent on the country's ability to attribute the income to an activity taking place in its territory.

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[1] The presentation can be found at www.un.org/esa/ffd/wp-content/uploads/2016/12/13STM_Presentation_Akerfeldt_5Dec16.pdf.

[2] See E/C.18/2016/CRP.6, available from www.un.org/esa/ffd/events/event/twelfth-session-tax.html.

[3] See www.un.org/esa/ffd/wp-content/uploads/2016/12/13STM_Presentation_Matheson_5Dec16.pdf.

[4] See E/C.18/2017/CRP.6, available from www.un.org/esa/ffd/wp-content/uploads/2017/03/14STM_CRP6_carbon-tax.pdf.

[5] See FCCC/CP/2015/10/Add.1, decision 1/CP.21, annex.

[6] United Nations, *Treaty Series*, vol. 1771, No. 30822.

Additionally, low oil, gas and commodity prices have created a downward pressure on income for resource-rich countries. In many developing countries a large portion of economic activity occurs in the informal sector, which hampers the raising of revenues from broad taxes on labour, capital and consumption. In contrast, revenues may be derived from the indirect taxation of fossil fuels used by the informal sector, that is to say, by taxing the fossil fuels prior to reaching the informal sector as a final consumer, thus capturing the rent associated with that oft-excluded economic sector.

9. Indirect taxes thus offer developing countries an opportunity to tax income upon consumption of a good or service, at the point which is most convenient for the tax administration to apply the tax. Because indirect taxes tend to lack the cross-country dimension, they can offer a less complex alternative by which developing countries accumulate substantial revenues without having to invest in the hiring of additional labour or the acquisition of new technological resources.

10. Environmental taxes can therefore be considered as a form of indirect taxation that would be easy to administer and would guarantee a steady revenue flow, while requiring little in terms of resources from tax administrations. In discussions of how developing countries can achieve sustainable (tax) revenue in view of all the challenges mentioned above, environmental taxes in general and carbon taxes in particular should not be overlooked as elements to add to the mix of taxation or to replace existing non-effective taxes.

II. The climate change framework

11. The 2015 Paris Agreement requires all parties to the United Nations Framework Convention on Climate Change to put forward their best efforts through nationally determined contributions to curb greenhouse gas emissions and to strengthen those efforts in the years ahead. Contrary to the Kyoto Protocol to the Convention,[7] which had a preference for carbon pricing mechanisms, more specifically for cap and trade systems, the Paris Agreement does not endorse one particular method for countries to address their excess greenhouse gas emissions. By extending the array of fiscal and financial tools available for countries to tackle climate change, the Paris Agreement shed new light on the less costly alternative resources available to countries when designing climate change policies. Following the introduction of the Paris Agreement, environmental and carbon taxes have become ever more relevant as an alternative to carbon pricing mechanisms, and an equally effective way for countries to meet their goals under the Paris Agreement.

12. The Paris Agreement shows that climate change is an international issue that is best dealt with through local actions coordinated under a global framework. Countries now have a unique opportunity to use the Paris Agreement to concede to a minimum tax on pollution in general or carbon in particular. Provided the tax is incident on a pollution-intensive substance, such as oil, gas, coal or coke, a new environmental tax can be both beneficial to the environment and an effective revenue raiser. If the tax is commensurate with the pollution potential of the item subject to tax, and provided the final price of the item is not distorted in any way, the tax will have the effect of attributing a higher price to the more polluting substances and a lower price to the less polluting. That would provide consumers with an incentive to purchase the cheapest and least polluting fuel item available. Over time, the tax can act to change consumer behaviour and habits.[8]

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[7] FCCC/CP/1997/7/Add.1, decision 1/CP.3, annex.

[8] Tatiana Falcão, "BEPS and the Paris Agreement — unthinkable bonds", *Intertax Law Journal* (publication forthcoming, September 2017).

III. Country practice

13. The present section outlines country practice in the use of carbon taxes throughout the world. As is evident from the table below, most of the countries engaged in environmental taxation in general, and carbon taxation in particular, belong to the developed world. The table aims to highlight some of the features of existing and proposed regimes and, in doing so, to provide elements for discussion of the appropriateness of developing further guidance for countries wishing to address negative externalities through the use of environmental taxes.

Past, present and prospective environmental tax policy in selected countries[a]

Entity	*Tax*	*Items subject to tax*	*Taxpayer*	*Tax incentives*	*Point of application*	*Other taxes and instruments*
Australia[b]	Carbon price mechanism[c]	Carbon dioxide, methane, nitrous oxide and perfluorocarbon emissions	Facilities having direct greenhouse gas emissions of 25,000 tons or more of CO_2 equivalent emissions a year	Revenue recycling,[d] transitional assistance to coal-fired electricity-generating plants, free permit distribution	Downstream	–
British Columbia, Canada[e]	Carbon tax	Fuels and combustibles combusted in British Columbia territory (gasoline, ethanol, light fuel oil, biodiesel and others)	Purchaser of the fuel or combustible (distributor, vendor or collector)	Exported and non-combusted fuels are exempted from the tax; revenue recycling[f]	Downstream	Interested in joining cap and trade scheme together with the Western Climate Initiative; motor fuel tax
European Union (1991 hybrid proposal)[g]	Combined carbon and energy tax	Coal, lignite, peat and their derivatives, mineral oils, natural gas, ethyl and methyl alcohol and electricity	Person manufacturing, distilling, importing or processing the items subject to tax	Energy-intensive industries exempted; exported fuels and electricity exempted; revenue recycling at member State level	Downstream	–
European Union (energy directive)[h]	Energy tax	Minimum rates of taxation for energy products including electricity, natural gas, coal, oil; products such as motor fuel, motor fuel for industrial or commercial use, heating fuel and others[i]	Non-energy-intensive entities and entities or persons applying those oil and energy inputs for non-business purposes	1. The following are exempt from tax: (a) energy products and electricity used to produce electricity and electricity used to maintain the ability to produce electricity; (b) energy products supplied for use as fuel for the purpose of air navigation other than in private pleasure-flying;[j] and (c) energy products supplied for use as fuel for the purposes of navigation within European Union waters[k] 2. European Union countries may apply total or partial exemptions or reductions in the level of taxation to, inter alia: (a) energy products used in pilot projects for the development of more	Downstream	Applied in combination with the European Union emissions trading scheme, which is applicable to energy-intensive industries

Entity	*Tax*	*Items subject to tax*	*Taxpayer*	*Tax incentives*	*Point of application*	*Other taxes and instruments*
				environmentally friendly products; (b) biofuels; (c) solar, wind, tidal, geothermal, biomass or waste energy sources; (d) energy products and electricity used in rail, metro, tram and trolley bus services; (e) energy products supplied for use as fuel for navigation on inland waterways; and (f) natural gas and liquefied petroleum gas used as propellants 3. The directive provides measures to alleviate the tax burden on energy intensive businesses and/or businesses that undertake to achieve environmental protection objectives or improvements in energy efficiency 4. European Union countries may refund, fully or in part, taxes paid by businesses that have invested in the rationalization of their energy use. This refund may be as much as 100 per cent in the case of energy-intensive businesses and up to 50 per cent for other businesses		
United Kingdom (climate change levy and carbon price floor)[l]	Climate change levy: energy tax; carbon price floor: carbon tax	The carbon price floor[m] acts in addition to the climate change levy. Both taxes are levied on electricity, gas supplied by a gas utility company, petroleum gas, coal, lignite, coke and semi-coke (of coal or lignite) and petroleum coke[n]	The supplier/retailer	Energy-intensive industries exposed to international competition are able to apply for a climate change agreement. Provided they agree to certain targets, they would benefit from reductions of up to 80 per cent	Downstream	Hydrocarbon duty; climate change levy; European Union emissions trading scheme

Entity	*Tax*	*Items subject to tax*	*Taxpayer*	*Tax incentives*	*Point of application*	*Other taxes and instruments*
Denmark[o]	Energy and carbon dioxide tax	Fossil fuels and electricity.	All VAT registered enterprises making use of energy products that are not covered by the European Union emissions trading scheme	Biofuels are excluded from the tax	Downstream	Energy tax; sulphur dioxide tax; European Union emissions trading scheme
Finland[p]	Carbon dioxide tax	Any fuel applied for transport or heating purposes (including, but not limited to, petrol, diesel oil, light and heavy fuel oil, kerosene, aviation petrol, coal, natural gas and bio-substitutes of all the aforementioned fuels)	Retailers	Biofuels may benefit from a reduced rate of 50 to 100 per cent provided certain conditions are met; fuels destined to produce electricity are exempted; peat is subject to a lower rate; natural gas is subject to a tax expenditure; electricity used by industry benefits from a reduced tax rate	Downstream	Energy tax, additional stockpile fee and European Union emissions trading scheme
Norway[q]	Carbon tax	Petrol, auto diesel, natural gas, mineral oil and emissions deriving from offshore petroleum activities	Extracting companies	An exemption applies for energy-intensive industries; tax exemption for the processing industry; biofuels entitled to reduced tax rate; energy-intensive industries, industrial sectors and rail transport participating in an energy efficiency program are entitled to reduced tax rates	Upstream	Sulphur dioxide tax; nitrate tax; energy tax; European Union emissions trading scheme
Sweden[r]	Carbon dioxide tax	Fossil fuels used as motor or heating fuels	Individuals, households and small and medium-sized enterprises	Exemption granted to energy-intensive industries	Downstream	Sulphur tax; energy tax; vehicle tax and European Union emissions trading scheme

Entity	*Tax*	*Items subject to tax*	*Taxpayer*	*Tax incentives*	*Point of application*	*Other taxes and instruments*
South Africa (still under discussion)[3]	Carbon tax	Not yet determined (possibly fuels)	Not yet determined	First 60 per cent of emissions would be exempted from the carbon tax for all industrial segments; 10 per cent relief to be granted to certain sectors to account for technical and structural limitations (process emissions); 10 per cent relief to be granted to energy intensive industries; rebates for entities promoting carbon capture and storage; Feed-in tariffs to promote clean and renewable energy resources	Upstream and midstream	Not yet determined
Japan[7]	Carbon tax	Crude oil and petroleum products, gaseous hydrocarbons and coal	Retailer	Exemptions and reductions are granted, although a detailed description of those tax benefits was not discoverable	Downstream	Other excises on fuel

(Footnotes on following page)

(Footnotes to table)

[a] The survey on which this table is based was conducted in 2013. The cut-off date for potential amendments in the surveyed countries' legislation was July 2013. The full survey is published in Tatiana Falcão, "A proposition for a multilateral carbon tax treaty," doctoral dissertation, Vienna University of Business and Economics, 2016 (IBFD publication, forthcoming) (see http://permalink.obvsg.at/wuw/AC13710313).

[b] Clean Energy Act 2011, No. 131, 18 November 2011, as amended, including amendments up to Act No. 103, 2013, part 1, sects. 3 (a) to (d), p. 4. This legislation was later repealed. The repealing legislation is available from www.legislation.gov.au/Details/C2014A00083. See also R. Lyster, "Repealing the 'carbon tax': hidden costs and unanswered questions", Sydney Law School, available from www.sydney.edu.au/news/law/436.html?newsstoryid=12498.

[c] Started as a fixed price mechanism and then progressed into a flexible, open-market trading system.

[d] Used to protect emissions-intensive, trade-exposed activities through cash refunds to the industry. Revenue resources also used to assist households through income tax cuts, family payments and support for jobs.

[e] Carbon Tax Act, SBC 2008, 29 May 2008, at chapter 40, part 3, section 8 (on imposition of the tax on fuels) and section 12 (on imposition of the tax on combustibles).

[f] Revenue recycling is to occur through tax reduction of other taxes. The program is revenue neutral.

[g] Commission of the European Communities, "A Community strategy to limit carbon dioxide emissions and to improve energy efficiency", SEC(91) 1744 final (14 October 1991). The proposed carbon/energy tax was never enforced. The proposal was archived and a less economically burdensome approach was adopted in its place.

[h] Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity, L 283/51 (31 October 2003), available from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:283:0051:0070:EN:PDF.

[i] Energy products and electricity are only taxed when they are used as motor or heating fuel, and not when they are used as raw materials or for the purposes of chemical reduction or in electrolytic and metallurgical processes.

[j] However, European Union countries may, for reasons of environmental policy, subject these products to taxation.

[k] European Union countries may limit the scope of the last two exemptions to international and intra-European Union transport. Therefore, for all air or sea transport within a European Union country or between two European Union countries that have signed a bilateral agreement to this effect, the countries may apply a level of taxation lower than the minimum set by the directive.

[l] With respect to the climate change levy, see Her Majesty's Revenue and Customs, Finance Act 2000, chap. 17 (2000), sects. 4(1) and 33(2). For information on the carbon price floor, see Her Majesty's Revenue and Customs, *Carbon Price Floor: Support and Certainty For Low-Carbon Investment* (London, December 2010). For general policy guidance, L. Marshall, *Economic Instruments and Business Use of Energy — A Report by Lord Marshall* (London, Her Majesty's Revenue and Customs, November 1998).

[m] The carbon price floor taxes the average carbon content of commodities.

[n] The climate change levy is only levied on supplies meant for industrial or commercial use.

[o] International Energy Agency, *Energy Prices and Taxes Quarterly Statistics — First Quarter 2013* (Paris, 2013). See also Danish Government, *Energy Strategy 2050 — From Coal, Oil and Gas to Green Energy*, No. 2011:7 (February 2011).

[p] Ministry of Finance of Finland, *Environmentally Related Taxes and Charges in Finland* (January 2012).

[q] Ministry of Finance of Norway, *Green Taxes 2011* (January 2011). See also Ministry of Finance of Norway, *The History of Green Taxes in Norway* (March 2007).

[r] Ministry of the Environment of Sweden, *Environmental Sweden in Brief — Economic Instruments* (8 October 2014), available from http://wayback.archive.org/web/20141111160533/http://www.government.se/sb/d/5400/a/43594. See also S. Åkerfeldt and H. Hammar, *CO_2 Taxation in Sweden: 20 Years of Experience and Looking Ahead* (June 2010).

[s] South Africa has not introduced specific carbon tax legislation yet. For background on the legislative proposal, see National Treasury of the Republic of South Africa, *Reducing Greenhouse Gas Emissions: The Carbon Tax Option*, discussion paper for public comment (December 2010) and Government of the Republic of South Africa, *National Climate Change Response — White Paper* (October 2011).

[t] Government of Japan, Ministry of Environment, *Details on the Carbon Tax* (2012), available from http://www.env.go.jp/en/policy/tax/env-tax/20121001a_det.pdf.

14. As demonstrated by the table above, most of the countries currently applying environmental taxes are members of the European Union. The Nordic countries are particularly active in this area and have had long experience with carbon taxes. Countries will diverge as to whether they apply the tax on an upstream,[9] midstream[10] or downstream[11] basis, and the effects of applying the tax at each of these stages should be further analysed by the Committee.

15. Most of the countries that have successfully introduced long-standing carbon taxes have started with lower tax rates and increased them over time. Many of the existing regimes grant exemptions to small and medium-sized enterprises. As demonstrated above, it seems clear that regional emissions trading schemes are compatible with environmental taxes.

16. Should the Committee of Experts consider it appropriate to develop guidance in the area of environmental taxation, it may wish to analyse how the results of that work would interact with the newly released handbook on taxation of extractive industries, perhaps leading to the introduction of a chapter in the next version of the handbook specifying where in the oil, gas and coal production chains a carbon tax might be applied.

17. A further issue is whether there would be areas of synergy between this work and the work of the World Trade Organization on trade and environment.

IV. Conclusion

18. Environmental tax issues have been considered and included in the agenda of the Committee of Experts on International Cooperation in Tax Matters for the last three sessions, and members of the Committee have historically been supportive of engaging in further work in this area. This is a forward-looking and important area of international tax law that has been positively influenced by adherence to the Paris Agreement by a record number of countries.

19. The survey has demonstrated that many countries are already benefiting from the administration of effective environmental policies, collecting the rent attributed to the tax and meeting the environmental targets set internationally by environmental agreements.

20. The subject is ripe for analysis by the current membership of the Committee, to determine how developed, developing and least developed countries' tax systems might benefit from the administration of effective environmental tax policies, drawing upon the work of others in this area and working with them as appropriate. This could be of great benefit to all stakeholders in tax systems.

[9] Upstream activities comprise, for example, the exploration and exploitation of fossil fuels for resource-rich countries, or the importation of fossil fuels for countries that do not hold mineral reserves.

[10] Midstream activities include, for example, the refining and transport of fossil fuels.

[11] The downstream phase comprises all activities related to the sale of the refined by-product to a final consumer.